



LANDON CARTER—THE TECH

**Delta Upsilon's old house**, located at 526 Beacon St. DU was suspended earlier this year by their international chapter.

## FEATURE

# Behind the suspension of the MIT Delta Upsilon fraternity

By Drew Bent  
STAFF REPORTER

When MIT's Technology Chapter of the Delta Upsilon fraternity was suspended this past April, there was no clear indication of the cause to outsiders. Other than the vague "inappropriate behavior" mentioned in a press release, neither Delta Upsilon International nor MIT explained why they were shutting down the chapter for two years.

That all changed with the chapter's "Save MIT DU" campaign. In a surprisingly transparent move, brothers publicly released documents revealing their account of the chapter's secret initiation rituals, their growing distance from their international fraternity, and the role MIT played in their suspension.

The documents described a DU International investigation that unearthed incidents of hazing, including sleep deprivation and "personal servitude." Other allegations, such as "public nu-

dity" and "urination on [new] members," were left unconfirmed by the investigation.

Brothers of the chapter referred to many of these as "ridiculous, untrue allegations." Although several agreed that their secret rituals violated DU and MIT's hazing policies, they maintained that nothing was illegal. One brother said that "everyone was treated with dignity and honor."

The investigation, prompted by an anonymous complaint against the fraternity, had turned into what the brothers called their "worst nightmare."

The brothers appealed to their international fraternity in the summer, saying the investigation and punishment were unfair. A board of trustees heard the case, but denied their petition.

What follows is a look at the hazing investigations that took the DU chapter by surprise, and a rare glimpse into the traditions and inner workings of a

120-year-old MIT fraternity.

### MIT investigates

It started with a surprise visit by a former brother.

During the third week of the 2014 spring semester, Descartes A. Holland '17 came into the chapter's house visibly shaking. He had depledged from the chapter just weeks before, but now had something new to share.

MIT officials had contacted him for questioning regarding DU with an unsettling sense of urgency. They had called his phone twice when he didn't pick up at first. Louis R. DeScioli '14, the fall 2014 president of the chapter, recalled that they had even called Holland's housemaster at MacGregor.

"It was extremely unprofessional what they did to me," Holland told The Tech in an interview. He was told to immediately go to an administrative

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## IN SHORT

The Saferide route changes went into effect yesterday. Check The Tech's previous coverage in last week's issue or [http://web.mit.edu/facilities/transportation/shuttles/safe\\_ride.html](http://web.mit.edu/facilities/transportation/shuttles/safe_ride.html) to see how the changes affect your evening rides.

IAP PE Registration opens for all on Wednesday at 8 a.m. Check out <http://mitpe.com> for the class schedule and registration.

Pre-registration for IAP and spring semester is now open. Pre-registration for both IAP and Spring closes on Dec. 31. This is also the deadline to indicate preferences for CI-H/HW classes in accordance to the new enrollment processes. Be sure to complete your spring pre-registration by then or face a \$50 late fee.

Send news information and tips to [news@tech.mit.edu](mailto:news@tech.mit.edu).

# Three from MIT become Rhodes Scholars

Two seniors and an alumnus received the scholarship to Oxford this year

By Sanjana Srivastava  
STAFF REPORTER

Two current MIT seniors, Anisha Gururaj '15 and Elliot Akama-Garren '15, and one graduate, Noam Angrist '13, were named Rhodes Scholars on Saturday, Nov. 22. They will begin graduate studies at Oxford University next year.

### Anisha Gururaj

Anisha Gururaj is currently pursuing a degree in chemical and biological engineering (Course 10B). At Oxford, Gururaj plans to study biomedical engineering

and public policy, and is also considering global health science. She says that her idea is to study "something more technical on the medical side, and then something more social with social implications." Her proposal to the Rhodes Scholar selection committee and career goals emphasize an interdisciplinary approach to engineering involving human interaction.

During her time at MIT, Gururaj pursued variety of interests, including a cappella singing as part of the MIT Ohms, Indian classical dance, science journalism, and medical device research and design. Gururaj started and led the design

of a fluid warmer for military trauma victims, and identifies "the value of talking to people" as a crucial and often overlooked component. She is also the chair of the Everett Moore Baker Memorial Foundation, which sponsors student projects and groups, and founded MIT's chapter of the Circle of Women, in which she is working on a project to help potential sex-trafficking victims in Nepal. Gururaj said she "started seeking out things where I could add value, and I learned from those experiences."

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## THE CORE PURPOSE OF OUR LIBRARIES

Libraries are for researchers and print material.

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### 'GOTTA CATCH 'EM ALL'

Earn your Squirtle from Professor Oak with this Sudoku. **FUN** p. 5

### THE NEXT GENERATION

Have what it takes to snag a Treeko? Prove it with a Techdoku. **FUN**, p. 5



### EVEN THOUGH GRAD SCHOOL IS HARD

Would you really go back and give it up? **FUN**, p. 6

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Canizares to take sabbatical after leaving the position.

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## MIT fraternities and sanctions

The DU case differed in several ways from other MIT fraternity suspensions in recent years.

In 2010, the Interfraternity Council (IFC), which is a student-run organization that represents and oversees MIT's 25 fraternities, received a document from an anonymous source outlining questionable activities in Phi Beta Epsilon's new member activities. The IFC judicial committee initially placed a 10-year expulsion on the chapter, but later approved an appeal that brought the punishment down to a four-year suspension.

An agreement between MIT and Phi Beta Epsilon in 2011 further relaxed the terms of the suspension, allowing members to stay in the house under probation and to recruit new members starting in the fall of 2012.

Then in 2013, a brother of the Phi Sigma Kappa fraternity fell four stories through a skylight during a party and sustained several injuries. Phi Sig was not suspended and was only placed on probation by the IFC judicial committee and subjected to alcohol inspections.

Before 2014, all cases like the ones above were handled by the IFC's judicial committee, which held its own hearings and determined the appropriate sanctions.

That changed with an IFC bylaw amendment that went into effect on January 2014. No longer is the IFC responsible for investigating or punishing hazing or sexual assault allegations. Instead, those cases fall under the purview of MIT's Committee on Discipline.

Delta Upsilon was the first fraternity to have its investigation since the bylaw change that transferred responsibility for such cases from the IFC to MIT.

Similarly, Lambda Chi Alpha was suspended by its national chapter rather than MIT after a woman fell and injured herself at a party at the fraternity in September, though the national organization did not attribute the suspension to that incident specifically. In response, MIT then derecognized LCA.

—Drew Bent



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# The story of the DU Technology Chapter

*MIT interviewed some members, notified international to take action*

**DU, from Page 1**

building for questioning. "I asked why, [but] they wouldn't answer," said Holland. "They said I had to come in immediately."

Holland met with Adam McCready, then the assistant director of fraternities, sororities and independent living groups (FSILGs), and Kevin Kraft, the director of student citizenship. He was asked about the chapter's pledge program, alcohol consumption, and the Help Week that new members participate in each year during IAP. As far as he remembers, Holland was left in the dark about what the administrators were investigating.

"It seemed like they were hiding or withholding how much they knew about the fraternity in general," said Holland. "They were asking me very specific questions."

Although the interview would be Holland's last involvement in the investigation, MIT had just begun contacting brothers and pledges. The FSILG office reached out next to Nathan Min '14, the chapter's pledge trainer, and Guillaume G. Kugener '15, the chapter's president at the time.

MIT's Kraft and McCready told the two not to talk about their meeting with the other brothers, according to the former president DeScioli. But they did.

DeScioli doesn't feel they were wrong in doing so. "If [someone] accused a family of crime, you would still talk to your other family members," he said. "MIT [was] going so far beyond what would be all right in an actual case in the real world."

DeScioli met with the FSILG office himself a day later on Feb. 21. "It was really aggressive," he said, comparing the experience to "being treated like a child."

At the time, though, the brothers said they didn't know why they were being questioned. Only later would they discover that the investigation had been prompted by an anonymous hazing complaint submitted to the FSILG office on Feb. 8.

An MIT spokesman declined to comment on the questioning to maintain the confidentiality of the process.

MIT reportedly told the chapter to notify the alumni corporation and their international fraternity of the investigation, but the chapter failed to comply. DeScioli said their first instinct was to handle it themselves: "We're not going to tell our alumni president because there's nothing here."

**'MIT was going so far beyond what would be all right in an actual case in the real world'**

*Louis DeScioli '14*

FORMER DU UNDERGRAD PRESIDENT

DeScioli said it was "so stupid in hindsight" for them to not have informed their alumni president. When he found out about the investigation through MIT and not the brothers, the alumni president was understandably "really angry," said DeScioli.

Kale T. Rogers '16, another DU brother, agreed: "Our initial reaction, which was bad, I think, in the light of the administration's eyes, [was that] we didn't understand what was happening, so we kind of coiled in."

On Feb. 26, MIT took its own action. McCready notified DU International of the ongoing investigation, concerning charges of "forced consumption of alcohol, forced water consumption, sleep deprivation, personal servitude, public nudity, and urination on [new] members," according to a DU report that the chapter obtained and

released as part of their "Save MIT DU" campaign.

That same day, Justin Kirk, the executive director of DU International, issued a temporary "emergency" suspension while an investigation was underway, citing "serious violations of the Fraternity's Loss Prevention Policy," which is a set of rules governing parties and fraternity events.

It had been eight days since Holland, the former pledge, was questioned.

### DU International enters the picture

A day after DU International had learned of the allegations from MIT and responded with a temporary suspension, it formally notified the chapter of the alleged violations of its Loss Prevention Policy and requested a response within the next 36 hours.

Kugener responded on behalf of the chapter with a 10-page letter, including the timeline of events, a response to the alleged charges, and the chapter's recommendations for the future, including making the house alcohol-free.

The brothers also denied most of the allegations, and said that they didn't intentionally haze any members. Not knowing the exact incidents mentioned in the anonymous complaint, they kept their comments vague.

DU continued with its formal investigation, though, and from March 4 to 5, the Executive Director Kirk and the Associate Executive Karl Grindel visited MIT's campus to interview the chapter's newest members, its VP of recruitment, and its president, as well as several MIT administrators.

Kirk and Grindel conducted interviews in a room provided by MIT, according to an email from Dean for Student Life Chris Colombo. In the email, Colombo emphasized that MIT had no involvement in DU's investigation other than sharing the initial complaint with them, which is standard MIT policy.

Kirk, on the other hand, told *The Tech* a slightly different story, in which DU had maintained "regular and consistent contact with the [FSILG] staff (including the Dean of Students, Chris Colombo)."

Following the investigation, Grindel filed a report for DU International on the findings, confirming several violations of their Loss Prevention Policy:

- allowing alcohol to be served to members under the age of 21
- participation in drinking games
- alcohol included in new members activities
- personal servitude
- sleep deprivation
- other hazing activities

The report included a plan for the chapter's future, which outlined a suspension followed by a spring 2016 recolonization. Both DU and MIT agreed on the timeline, said Kirk.

In the report, DU also requested the alumni raise \$30,000 for the recolonization, as well as an additional \$150,000 for the DU Educational Foundation Legacy Plan. According to DU's website, the money would go toward funding scholarships after the chapter's recolonization.

The report was immediately shared with David Latham, the alumni president of the chapter. As instructed by DU, Latham did not share the report with the brothers.

The brothers would receive the report over four months later on July 10. According to Kirk, though, the international fraternity's "due process was followed," and it had been the first time the chapter had requested the report.

### Secret rituals of initiation

"It's a shit ton of fun," said

DeScioli.

For him, the initiation process was one that the chapter had built into a 70-year tradition unique to the Technology Chapter. DeScioli called it a "voluntary act" and a process that the brothers actively sought to improve each year through feedback.

The secret initiation happens during the last week of every IAP. In what the brothers call Help Week, new members live in the house and clean the common areas while setting their own work schedule.

In DU's investigation, a majority of the new members confirmed that the condition of the house this year was "vile, with overflowing trash barrels, food debris, clogged toilets, beer cans, spray painted walls, [holes] in the walls, and other abnormal conditions." Some interviewees said this was normal for the house during IAP, while others said it was the result of a party thrown the night before Help Week started.

Both DU and the chapter confirmed that a brother had spray-painted walls of the house the night before new members were to paint over the walls. Although the chapter allegedly held the brother accountable, Kugener admitted that they could have taken "more formal disciplinary steps."

"While we did not believe there was any real harm done at the time since the walls were being painted," wrote Kugener in the letter, "we now see how it could have looked and we regret giving the impression that we were trying to make the new members work harder during Help Week."

An event called Larry Legend marks the end of Help Week and lasts approximately 20 hours. During the event, the house is kept pitch black, and the windows are covered with cardboard and tinfoil. The new members are escorted to a bedroom on the third floor, where they spend the night.

**The condition of the house was 'vile, with overflowing trash barrels, food debris, clogged toilets, beer cans...'**

Both DU and the chapter agreed that cell phones and watches were taken away from the new members this year. Although DU considered this confiscation an "intentional disorientation of pledges," it recognized that none of the pledges interviewed were reportedly disturbed by it.

That evening, new members were told to study for a pledge exam the next morning and write an essay about why they should be initiated into DU.

The new members also needed permission from two brothers standing outside the room if they wanted to use the bathroom or drink water.

The new members were then woken up at 6 a.m. for the pledge exam and to review their essays with the brothers. They were given several more hours to sleep that morning interspersed between other pledge activities, which included a seven-course meal put on by the brothers.

According to DU's official pledge program, the new members were already brothers at this time, having already been initiated the past December.

"The Technology Chapter's decision to hold a second, non-sanctioned, secret ritual was a clear violation of one of DU's founding principles," said DU's Kirk. "Since its beginning, Delta Upsilon's aims have been open, honest and direct and not shrouded in secrecy."

MIT also requires all fraternities' pledge programs last no longer than 12 weeks, ending on Dec. 4, as part of a policy introduced shortly before.

### A closer look at the allegations

Throughout DU International's investigation, a major question was the involvement of alcohol at initiation events.

Although Kugener and DeScioli originally admitted during a conference call with DU that the chapter had served alcohol at new member events, they later denied the allegations in their formal response, according to DU.

**A new member 'fell, hit his head, lost consciousness, and received a large laceration...'**

In the response, however, Kugener did admit that individual members of legal drinking age had served underage students with "alcohol purchased with their own money."

The interviewees in DU's investigation had varied accounts of alcohol consumption at pledge activities, but generally agreed that it had been available. Two members said that beer was served to some new members at the final initiation event, Larry Legend, and two others acknowledged the presence of wine during the event.

Through the investigations, DU also learned of an alcohol-related incident at an unregistered event at the chapter on Jan. 18 in which a new member "fell, hit his head, lost consciousness, and received a large laceration on his forehead." Both the new member who was injured and another interviewee confirmed the injury.

The chapter did not contact MIT's Emergency Medical Services at the time, although the new member was later diagnosed with a concussion.

DU also discovered that new members had participated in a day-long scavenger hunt around Boston during the fall, despite scavenger hunts being explicitly banned by DU.

Grindel further took the report as an opportunity to mention the disconnect between the chapter and the international fraternity.

"There is no understanding or connection to Delta Upsilon in the chapter experience," wrote Grindel. "The Chapter President had never heard of the Chapter Excellence Plan," a metric upon which all chapters are evaluated.

According to the report, the Technology Chapter had sent only one member to the DU's educational programs in the previous 12 months, whereas the average chapter had sent 12. The chapter had also raised no money for DU's Global Service Initiative.

"Part of why we appeared so negative is [that] we hadn't taken a part as much in those programs, and it's because we get more value from what MIT teaches us ... rather than what [DU thinks] they're offering their members," said DeScioli.

In the report, Grindel also suggested that the chapter was less than cooperative during the investigation, saying there was "strong suspicion that the [new] associate members were coached on what to say [in the interviews]."

### The hearing

As set forth by DU, brothers of the chapter had the opportunity to defend themselves in person. On

# Three MIT recipients of Rhodes Scholarship

*Gururaj, Akama-Garren, Angrist win Rhodes Scholarships this year*

Rhodes, from Page 1

## Elliot Akama-Garren

Elliot Akama-Garren is a biology major who plans to pursue an MSc in integrated immunology at Oxford. He hopes to leave an impact on the world by "studying the ways one can manipulate the immune system to treat human disease" according to a Rhodes profile.

Akama-Garren considered the process of applying for a Rhodes to be "more a process of self-discovery" than a competition, and said that it is better to "give everything your best" and be passionate than to work toward the scholarship.

Akama-Garren has performed research in immunology at MIT's Koch Institute, Stanford, Harvard, and Massachusetts General Hospital, and has been an author on several publications, according to his Rhodes Scholar profile. He is also the editor in chief of the MIT Undergraduate Research Journal (MURJ), and he volunteers at the Harvard Square Homeless Shelter. In addition to his scientific and public service pursuits, Akama-Garren is the president of the MIT Men's Ice Hockey team.

## Noam Angrist

Noam Angrist majored in mathematics and economics at MIT and was a Fulbright Scholar in his senior year. Through the scholarship, he started an NGO called Young

love in Botswana that aims to educate people on the "sugar daddy" phenomenon he noticed there that leads to high HIV and pregnancy rates. At Oxford, Angrist will pursue a Masters and potentially a PhD in Evidence-Based Social Intervention and Policy Evaluation, "applying quasi-experimental methods, mathematical techniques, and randomized trials to actually figure out what really adds value in the world."

He hopes to combine his work in Botswana with work at Oxford.

Angrist co-founded Amphibious Achievement at MIT, a program that brings inner city youth to MIT once a week and works with them on rowing, swimming, and academic skills. Angrist attributes Amphibious Achievement's success to the fact that teamwork and effective coaching in rowing and swimming allow students to see that their teachers care about their success, developing "a trust that's hard to get in people [who] distrust adults and society." Angrist also performed economics research at World Bank and the White House, rowed, and coached rowing, according to his Rhodes Scholar profile.

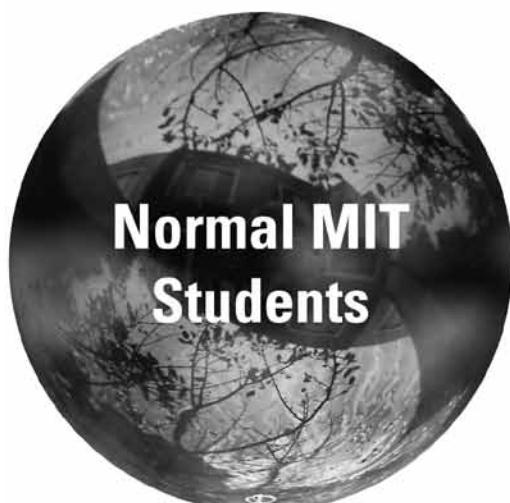
All three Rhodes Scholars thanked Kim Bernard of the MIT Distinguished Fellowship Office and the other panel members for helping them through the very personal process of applying. Gururaj said that they "forced me to think about and justify why I wanted to do this."



MEGAN PRAKASH—THE TECH

**Wellesley FreeStyle** poses in the middle of their performance at Ring the Alarm 2014. The all-female group dealt with some technical difficulties at the start of their dance, but hosts Morris Vanegas and Armand Mignot kept the audience occupied and energetic.

## Do you live *outside* the bubble?



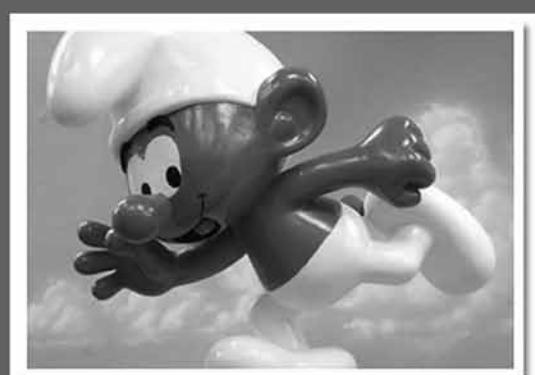
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## OPINION OPINION OPINION OPINION OPINION



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## LETTERS TO THE EDITOR

## Remembering the core purpose of university libraries

On October 6 and October 14, MIT Libraries hosted sessions to solicit student input on the upcoming renovations of Hayden Library. I was present at the second session, and was alarmed by much of what I heard. More specifically, I believe that many of the proposed changes and renovations will result in a library that fails to adequately support researchers who rely on timely access to print materials.

A summary report from the student input sessions lists five prominent activities that the library should support: work and study spaces for individuals and groups; spaces to learn and create; semi-social, quasi-public places to work and socialize; spaces to reflect and take a break; visible and prominent places to display exhibits. Many of the recorded suggestions regarding the renovation have to do with aesthetic considerations — the library should be well-lit and inviting, comfortable furniture

should be available for relaxed reading and napping, the layout of Hayden should be so optimized as to minimize disorientation and confusion, and so on.

These are understandable goals. But those who want to make these changes should not lose sight of the fact that the libraries' main purpose should still be to provide research materials. For researchers in some disciplines, access to extensive, on-site physical collections is an absolute necessity for effective instruction and scientific progress. I worry that the planned renovation of Hayden will have serious consequences for these members of the MIT community.

According to the summary of the student feedback sessions, books merely serve as "reminders of the physical artifacts of knowledge," and sitting among them "is calming and makes [one] want to study harder." The overall student recommendation is to "maintain some stacks," in part because they can "provide a buffer zone" between study areas and group spaces. Although it is acknowledged that "reading through titles is a rich and interactive way to search for information,"

many seem to be unaware of the necessity of these physical collections. The overall impression one gets from reading the document is that students do not find books a necessary component of a university library. The dissenting view expressed by several attendees — that books are an important part of the library — is not reflected in the summary.

The current plans for the Hayden redesign involve an unspecified number of books leaving the shelves for an off-campus storage facility in Southborough, MA. Delivery from the storage facility can take anywhere from 2-7 days. Although I understand that it is an important priority for MIT as a whole to create more spaces for group study and instruction, this should not come at the expense of the core function of its academic library: to support the research of students and faculty. I urge the librarians to consider carefully the needs of the entire student body, especially those whose learning and research crucially depends on reliable access to Hayden's collections.

*Julie Stanton is a graduate student in the Department of Linguistics and Philosophy.*

## CORRECTIONS

The "Saferide route changes to go into effect in Dec." article from the Tuesday, Nov. 25 issue of *The Tech* incorrectly suggested that the living groups affected by the removal of the Bay State Road stop was a complete list. Student House independent living group was not included in this list but will also be affected by the change.

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# Squirtle Sudoku

Solution, page 8

A partially filled 9x9 Sudoku grid. The visible numbers are:

2				1				
	6					2		
9	5		2		3			8
5			7	9			2	
	2	3			4	7		
	4			2	1			5
8			6		2		9	7
		7					4	
				3				1

Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9.

# Snivy Sudoku

Solution, page 8

A partially filled 9x9 Sudoku grid. The visible numbers are:

6	8		3	4				
					2			
		4	8	6	9			
	4	5	7	9				
	3	1		5		2	7	
			2	3	4	5		
			2	8	1	9		
			6					
				3	4		2	8

Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9.

# Totodile Techdoku

Solution, page 8

60x			12x		30x
8x		12x			
	30x			12x	6x
10x		120x			
54x				12+	
6		2x			

Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–6. Follow the mathematical operations for each box.

# Treeko Techdoku

Solution, page 8

<b>22+</b>			<b>10+</b>	
	<b>24x</b>		<b>120x</b>	<b>6÷</b>
		<b>30x</b>		
<b>4x</b>			<b>18x</b>	<b>7+</b>
<b>4</b>		<b>3</b>		<b>2</b>
<b>40x</b>			<b>18x</b>	

Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–6. Follow the mathematical operations for each box.

# **Saturday Stumper**

by Doug Peterson

## Solution, page 10

## ACROSS

- 1 Two-bit autocrats
  - 8 "Let's get moving"
  - 15 Even-tempered
  - 16 Set to rest
  - 17 Ranch alternative
  - 18 Back
  - 19 Car-wash device, for short
  - 20 Fairly large
  - 22 Name on NutRageous
  - 23 Literally, "leader"
  - 25 Pacers of yore
  - 27 Composes
  - 29 Buzz generator, ideally
  - 30 Musical opening
  - 34 Blew away, maybe
  - 36 Positive
  - 38 Part of Arby's logo
  - 39 See
  - 41 Straightens out
  - 43 Stick—
  - 44 Moon of Pluto
  - 46 Digital challenge
  - 47 NASCAR setting
  - 49 Redemption novelist

51 Some Super Bowl venues  
52 F

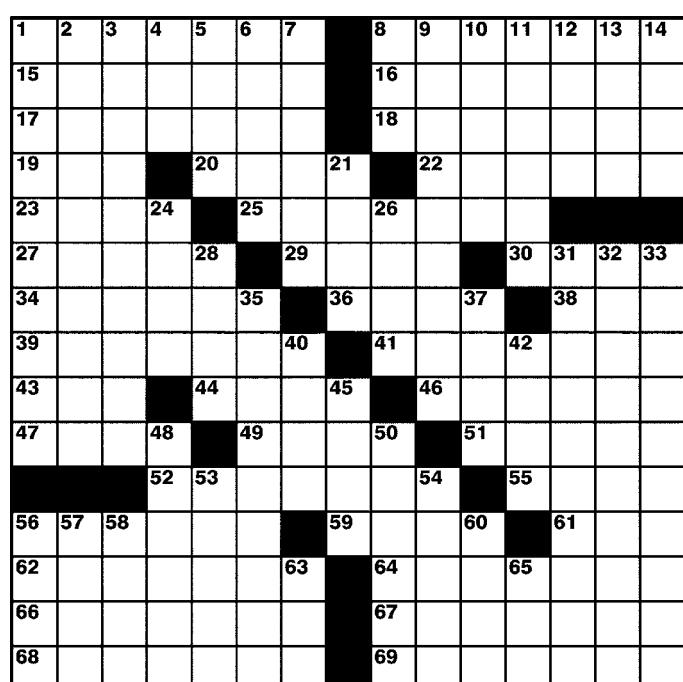
- 52 Runners of experiments  
55 Meeting place  
56 Pickle or jam  
59 Sound-stage worker  
61 Step on a scale  
62 Showing pique  
64 Song in Jamaica Tourist  
Board ads  
66 Rather firm  
67 Halberstam subject in The  
Powers That Be  
68 Tops in soreness  
69 Some Mel Blanc characters

**DOWN**

1 One allowed to pre-board  
2 Cool shade  
3 End of a Groucho elephant  
joke  
4 Campus monitors, familiarly  
5 Moderately  
6 Buffalo check, for one  
7 Spoof

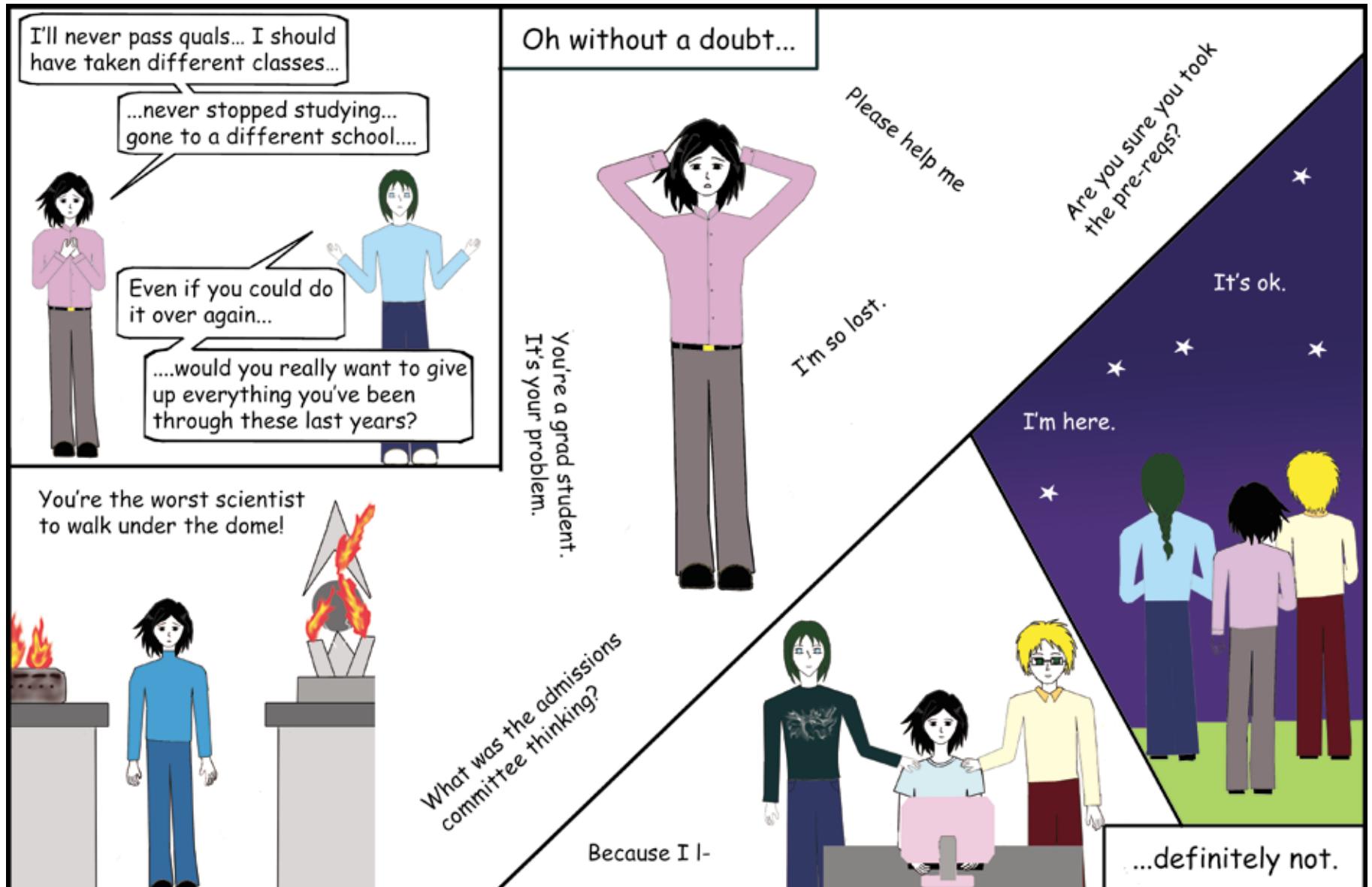
DOWN

- |   |                                   |    |                                  |
|---|-----------------------------------|----|----------------------------------|
| 1 | One allowed to pre-board          | 40 | "Reader, I married him"          |
| 2 | Cool shade                        |    | speaker                          |
| 3 | End of a Groucho elephant<br>joke | 42 | Noodles served with soy<br>sauce |
| 4 | Campus monitors, familiarly       | 45 | Sign shorthand                   |
| 5 | Moderately                        | 48 | Like "10" and 300                |
| 6 | Buffalo check, for one            | 50 | Lakeside activity                |
| 7 | Spoof                             | 53 | Have something to declare        |



- |                             |                            |
|-----------------------------|----------------------------|
| 54 Mount topped by a mosque | 58 Kudrow's Friends spouse |
| 56 Bombard with offers, say | 60 Rocks, for a time       |
| 57 It flattens over time    | 63 Appreciate              |
|                             | 65 Fresh language          |

# Somewhere on the Search for Meaning... by Letitia Li



 **CSAIL**  
MIT COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE LABORATORY

## DERTOUZOS LECTURE SERIES 2014-2015

### Deep Learning

**Wednesday,**  
**December 3, 2014**  
**MIT Bldg 34-101**  
**4:15-5:45PM**



**Abstract:**  
I will give a brief history of deep learning explaining what it is, what kinds of task it should be good for and why it was largely abandoned in the 1990's. I will then describe how ideas from statistical physics were used to make deep learning work much better on small datasets. Finally I will describe how deep learning is now used by Google for speech recognition and object recognition and how it may soon be used for machine translation.

**Biography:**  
Geoffrey Hinton received his BA in experimental psychology from Cambridge in 1970 and his PhD in Artificial Intelligence from Edinburgh in 1978. He spent five years as a faculty member in the Computer Science department at Carnegie-Mellon University. He then became a fellow of the Canadian Institute for Advanced Research and moved to the Department of Computer Science at the University of Toronto. He spent three years from 1998 until 2001 setting up the Gatsby Computational Neuroscience Unit at University College London and then returned to the University of Toronto. Since 2013, he has been splitting his time between the University of Toronto and Google.

Geoffrey Hinton is a fellow of the Royal Society, an honorary foreign member of the American Academy of Arts and Sciences, and a former president of the Cognitive Science Society. He was awarded the first David E. Rumelhart prize (2001), the IJCAI award for research excellence (2005), the Killam prize for Engineering (2012) and the NSERC Herzberg Gold Medal (2010) which is Canada's top award in Science and Engineering.

Geoffrey Hinton designs machine learning algorithms. His aim is to discover a learning procedure that is efficient at finding complex structure in large, high-dimensional datasets and to show that this is how the brain learns to see. He was one of the researchers who introduced the back-propagation algorithm that has been widely used for practical applications. His other contributions to neural network research include Boltzmann machines, distributed representations, time-delay neural nets, mixtures of experts, variational learning, products of experts and deep belief nets. His students used deep learning to change the way in which speech recognition and object recognition are done.

*Formerly the Distinguished Lecture Series, the series has been renamed in memory of Michael Dertouzos, Director for the Lab for Computer Science from 1974 to 2001.*

*The Dertouzos Lecture Series has been a tradition since 1976, featuring some of the most influential thinkers in computer science, including Bill Gates, Steven Jobs, Donald Knuth, John McCarthy, and Mitchell Kapor.*

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## WEATHER

## Riding the temperature roller coaster

**By Casey Hilgenbrink**  
STAFF METEOROLOGIST

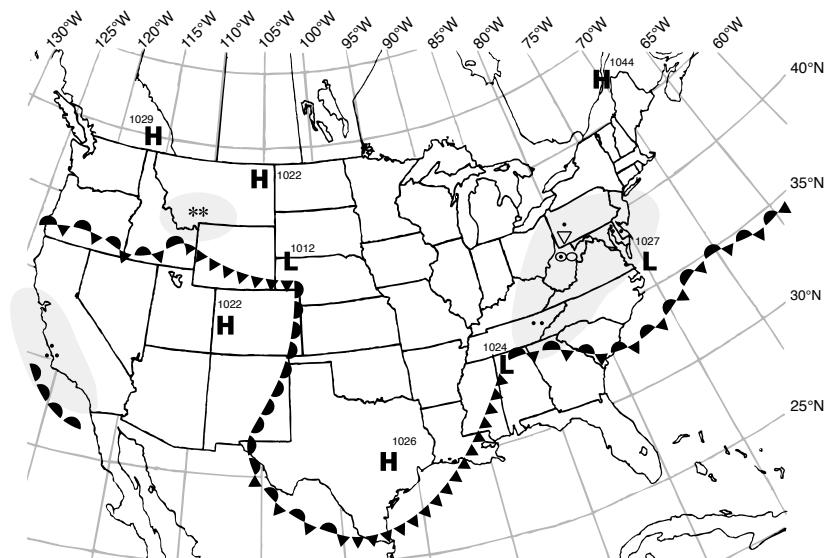
We enjoyed an unusually warm day yesterday, with temperatures topping out at 64°F (18°C) — that's 18°F (10°C) warmer than the average high temperature for yesterday's date! Today's high temperature will be a whopping 29°F (20°C) colder than yesterday's thanks to the passage of a cold front late yesterday afternoon. These cold temperatures won't last long, though, due to an area of low pressure forming off of the North Carolina coast tonight. As this system tracks northward, winds in Boston will become southerly, making for a mild day tomorrow with a high temperature of 56°F (13°C). Of course, there is a trade-off — rain showers are likely early tomorrow morning, although chances of precipita-

tion will taper off as the morning progresses. On Thursday, temperatures will take a swing in the other direction thanks to the passage of a cold front Wednesday night; expect seasonally cool temperatures in the low 40s°F (6°C). Expect a colder high temperature in the mid 30s°F (2°C) on Friday as this cold airmass behind the front settles in.

In other news, the Atlantic hurricane season, which began on June 1, ended this past Sunday. As predicted, it was a quieter-than-usual season, with only 8 named storms as compared to an average of 12. In fact, 2014 was the ninth consecutive year without a major (category three or above) hurricane making landfall in the United States. This is the longest span without a major landfalling hurricane since record-keeping began in 1851!

### Extended Forecast

**Today:** Mostly cloudy, with a high temperature of 35°F (2°C). North wind around 10 mph becoming east in the afternoon.  
**Tonight:** Overcast, with a low temperature of 33°F (1°C) around midnight, with temperatures rising overnight. East wind becoming south at 10 mph. Brief chance of snow in the evening, with rain likely overnight.  
**Tomorrow:** Overcast, with a high temperature of 56°F (13°C). South wind at 10 mph with gusts up to 20 mph. Chance of showers in the morning.  
**Thursday:** Mostly sunny, with a high in the lower 40s°F (6°C).  
**Friday:** Partly sunny, with a high in the mid 30s°F (2°C).



Situation for Noon Eastern Time, Tuesday, December 2, 2014

Weather Systems	Weather Fronts	Precipitation Symbols	Other Symbols
H High Pressure	- - - Trough	* Rain	≡ Fog
L Low Pressure	— Warm Front	▽ Showers	RK Thunderstorm
§ Hurricane	▲▲▲ Cold Front	● Light	∞ Haze
	△△△ Stationary Front	• Moderate	***
		.. Heavy	:::

Compiled by MIT Meteorology Staff and *The Tech*

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#### Solution to Treeko

from page 5

3	6	2	5	1	4
5	2	4	1	3	6
6	3	5	2	4	1
1	4	6	3	5	2
4	1	3	6	2	5
2	5	1	4	6	3

#### Solution to Totodile

from page 5

1	4	3	2	6	5
2	5	4	3	1	6
4	1	6	5	3	2
5	2	1	6	4	3
3	6	5	4	2	1
6	3	2	1	5	4

#### Solution to Snivy

from page 5

6	8	2	3	4	7	1	9	5
3	9	7	5	1	2	6	8	4
5	1	4	8	6	9	7	3	2
2	4	5	7	9	6	8	1	3
9	3	1	4	5	8	2	7	6
7	6	8	1	2	3	4	5	9
4	5	3	2	8	1	9	6	7
8	2	9	6	7	5	3	4	1
1	7	6	9	3	4	5	2	8

#### Solution to Squirtle

from page 5

2	7	4	9	1	8	6	5	3
3	6	8	4	7	5	2	1	9
9	5	1	2	6	3	4	7	8
5	8	3	7	9	6	1	2	4
1	9	2	3	5	4	7	8	6
7	4	6	8	2	1	9	3	5
8	1	5	6	4	2	3	9	7
6	3	7	1	8	9	5	4	2
4	2	9	5	3	7	8	6	1

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# DU, appeal denied, will return in 2015

## Despite efforts by brothers, frat was not reinstated after hearing

**DU from Page 2**

April 4, two members of the chapter went to Indianapolis to appear before the Board of Directors.

There, the brothers presented a plan for a complete transformation of the chapter — they would remove the pledge program, turn the chapter into an alcohol-free house, and build a stronger relationship with DU International.

After hearing the proposal, though, the Board of Directors immediately chose to suspend the chapter. The chapter was notified on April 16 of the two-year suspension, and all current members were placed on alumni status.

MIT subsequently withdrew its recognition of the chapter the same day and notified the undergraduates, parents, and alumni associated with the chapter. Students were given the opportunity to live in on-campus housing.

According to the chapter, their first meeting with either MIT or Delta Upsilon to discuss the suspension as an entire chapter didn't happen until April 20. Bob Ferrara, Interim Director of the FSILG office, came to their house on behalf of MIT.

With nothing else to lose, the chapter chose to appeal DU's decision "on grounds of lack of due process and disproportionately [sic] of the punishment," according to their "Save MIT DU" website.

### The appeal

On July 31, the chapter sent 11 undergraduates and five alumni — the most they had ever sent — to the DU Leadership Institute in Kansas City, Missouri, where the appeal would be heard. With only two other appeals in the past decade, there was not much precedent to follow.

In preparation, the brothers had just days before published online all the documents that they had collected from the investigation, in what appeared to be an attempt to garner public support. MIT's files from its investigation were notably missing from the website, as MIT had declined brothers' requests to see them.

The website, which has since been taken down, was titled "Save MIT DU."

In Kansas City, DeScioli laid out the chapter's case before DU's Board of Trustees, which consists of roughly 70 alumni representing all the chapters. The entire hearing took 50 minutes and included a presentation from the Board of Directors, who had made the original decision to suspend the chapter.

The trustees debated whether to overturn the suspension when MIT could act independently and possibly come back with even stricter sanctions, according to a recording of the hearing obtained by *The Tech*.

"We don't necessarily believe that [leaving it up to MIT] will result in lesser sanctions," said DeScioli, but he said the original investigations had had "a certain lack of justice" to their process and that a second investigation by MIT could allow them to have a fair trial.

Several trustees were uneasy about reversing the suspension and the effects of reopening the case. Since DeScioli had noted earlier that he thought other MIT fraternities had similar unsanctioned events, James Bell, a former member of DU's Loss Prevention Committee, worried the chapter might "be made an example of" by MIT. "I do not feel that, given that court, we will get a fair shake," he said.

The current chairman of the Loss Prevention Committee, Jordan Lotsoff, focused on the liability the chapter posed for DU, saying DU could "not turn a blind eye" on the chapter's actions and that the possibility of a lawsuit was "one of the major things that the [Board of Directors] was aware of and took into account at the time" of the decision.

DeScioli maintained that DU should turn over the decision to MIT. Although he agreed that the outcome could possibly be worse for the chapter, he described it as a cause worth fighting for.

### Looking ahead

Despite the attempts of the Technology Chapter, the appeal was denied by a 43-to-9 vote, and the realities of the suspension have stuck with the brothers. They were forced to find new housing after this summer, and none of them will be allowed to return even once the chapter has recolonized.

DeScioli described the stress that the brothers faced last spring semester while trying to handle both school and the investigations. "Two of [the brothers] got F's," he said. "I think four or five of us got D's."

Rogers finds the situation especially unfortunate for the pledge class at the time of the investigation. "I feel very poorly, especially for the people who were considered hazed in this," said Rogers. "And the fact that they are no longer allowed to live in the house and enjoy some of the benefits of DU that made them join in the first place ... is something that, I think, really hurts all of us."

Rogers, who served as the IFC events chair in addition to being a brother, recently joined the MIT Division of Student Life's Hazing Prevention and Education Committee and hopes to increase transparency in future MIT investigations.

He said the school is actively looking to make changes to the process. There are already plans to have the FSILG office no longer conduct investigations itself, according to Rogers. Instead, the investigations will fall under a separate committee, allowing the FSILG office to focus more on being the advisor to living groups.

"It's hard to be the advisor and the executioner," quipped DeScioli.

MIT declined to comment on the investigation to *The Tech*, but Rogers said that a few administrators had "mentioned [to him that] it was a muddy process."

Rogers believes that MIT is trying to learn from its investigation. "I very much think that these [FSILG] changes have come about because of the recognition that our process wasn't handled in the best way, for either side."

As it stands, the chapter is suspended for 18 months, or until October 2015. The recommended timeline is to have the chapter recolonize in spring 2016 with alumni raising \$30,000 for an expansion.

MIT is guaranteeing the chapter's return in spring 2016 provided that there are advisors to assist with the recolonization, according to a DU staff member.

Meanwhile, the brownstone at 526 Beacon Street has transformed from a lively fraternity into the home of dozen MIT graduate students, mostly from Russia's Skolkovo Tech. One even has a baby. "[It's] kind of hilarious and slightly disturbing to think about a baby growing up in a fraternity house," said DeScioli.

## MIT Vice President Claude Canizares stepping down

Claude Canizares, MIT Vice President and Bruno Rossi Professor of Physics, will be stepping down at the end of the current academic year. He will leave his position on June 30 and will take a sabbatical after stepping down.

Canizares came to MIT as a postdoc in 1971 and became a faculty member in the Department of Physics in 1974. In 2001, he was appointed Associate Provost, then became Vice President for Research in 2006. Canizares has served as MIT's Vice President since January 2013. He also serves as the Associate Director

of NASA's Chandra X-ray Observatory Center.

In an e-mail to the MIT community, President L. Rafael Reif wrote, "Claude has excelled at making contributions that have touched nearly every corner of the Institute."

Canizares "played a key role in establishing the MIT Energy Initiative, the Koch Institute for Integrative Cancer Research and the Institute for Medical Engineering and Science, and he spearheaded the formation of the Massachusetts Green High Performance Computing Consortium," wrote

Reif. Canizares has also been an integral part of developing MIT's recent international collaborations, including connections in Singapore, Russia, and Abu Dhabi.

"MIT is an outstanding institution, thanks entirely to its remarkable people," Canizares said in an interview with MIT News. "It has been my great privilege to serve three presidents and four provosts and work with a host of senior administration, faculty, and staff over the past 13 years."

—Alexandra Delmore

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from new\_skills import \*

```
def learnMarketableJobSkills():
    return linux, OSX, javascript, applescript, perl, python, PHP

if self.interest == True:
    print "E-mail join@tech.mit.edu"

----:----F1 joinTechno.py          (Python)--L1--Top----
```

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Solution to Crossword									
<i>from page 5</i>									
S	A	T	R	A	P	S	O	F	F
E	Q	U	A	B	L	E	W	E	G
R	U	S	S	I	A	N	T	A	E
V	A	C	T	I	D	Y	R	E	E
I	M	A	M	D	U	E	L	E	R
C	A	L	M	S	P	L	U	G	A
E	R	O	D	E	D	P	L	U	T
D	I	O	C	E	S	U	N	C	U
O	N	S	T	Y	X	S	U	D	O
G	E	A	R	U	I	S	D	O	M
R	O	D	E	N	T	S	N	O	E
S	C	R	A	P	E	G	R	I	S
P	O	U	T	I	N	G	O	N	E
A	L	D	E	N	T	E	O	N	E
M	A	D	D	E	S	T	L	I	S

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**CI-HW**

Communication-  
Intensive  
HASS  
Writing



If you plan to take a subject designated CI-H or CI-HW this spring, you must select it in pre-registration on WebSIS by **Wednesday, December 31** in order to have the chance to be scheduled into it.

Want to know what's going on between issues of *The Tech*?  
 Find out what's happening right now at [techblogs.mit.edu](http://techblogs.mit.edu).



# Football season ends for MIT Engineers

## Saturday's defeat ends historic run

**Football**, from Page 1

new level of confidence because of what we were able to accomplish last year and having so many starters coming back."

"[The players] had it in their minds that, minimally, we were going to win a conference championship."

The confidence might have been built upon last year's 6-3 season. Wide Receiver Seve A. Esparrago '16 said of last year, "one thing we've seen is that we can play with any team in our conference. We could have won almost any of the games." The team capitalized on that feeling, scoring an average of 42.4 points a game in conference matchups.

For the players, the success is very much about attitude. Esparrago said, "We don't go into games and say, 'We're gonna try our best...' I think we all expect to win, and that's been the goal from day one."

The team is held up by strong leadership from its more experienced players, as defensive back Anthony J. Souffrant '15 can attest. He's seen the difficult transition from high school to college football, and said, "As a junior and senior you try to make sure that [younger players] know that it's gonna be a little bit tougher, and I've think I've done a good job of doing that."

MIT finally fell at Wesley College, where the Wolverines racked up 35 points in the first quarter — including 28 in two minutes — and never gave MIT a chance to recover. Wesley slowed down in the second half but finished the game 59-0 to secure a spot in the quarterfinals.

There was clearly disappointment

after the loss. "We played a very good team that capitalized on some early mistakes we made," said Martinovich. "We went into the game thinking that we could win, like we do every game... but the better team on that day won."

The offseason presents a chance for players to show their dedication to their craft, and Martinovich believes they'll be motivated by the level of achievement seen this season. For a Division III school, offseason conditioning and workouts are not mandatory, but Ryan S. Hays '18 said, "I guarantee that most of us, if not all of us, will end up being there working year-round."

Hays said the caliber of student athletes at MIT is special. "The reason that we're here [at MIT] is because we have the drive and perseverance to do well. Football is very much the same thing. Being an athlete means being meticulous in the short term, and maybe it's boring and tedious, but in the long term that helps you reach your goals."

Being a student athlete at MIT presents unique challenges. To ensure that new team members are well organized, Coach Martinovich pairs each freshman with an upperclassman mentor and has them create "life schedules" to map out how they spend their time. Players feel the meticulous planning translates to more focus — on football on the field and academics off.

Coach Martinovich hopes MIT will repeat and exceed this year's performance on a regular basis. He concluded, "I hope we never hit the ceiling. I don't think we have."

## Institute Double Take



By Landon Carter  
STAFF PHOTOGRAPHER

As the harsh winter begins to settle in, I wanted to take one last chance to capture a Boston sunset before the weather became too cold. Luckily, this past Sunday the temperature rose to a balmy 50 degrees, and there happened to be a beautiful sunset with a nice mix of clouds. I set up under the BU Bridge, facing southwest into the sunset. I decided to try out a technique I'd just read about, tak-

ing a series of about 300 pictures after the sun set, every 5 seconds from 5:00-5:25 p.m. (official sunset time: 4:13 p.m.). The aperture and ISO were set to maximize exposure time, helping one photo to blur into the next.

Afterward, the sequence was compiled with Photoshop's layer stacking's lighten option, then a mixture of local noise and blur was used to remove some gradient banding. Finally, the image was processed in Lightroom for color and exposure tweaks.

**Aperture:**  
f/22  
**Exposure Time:**  
From 1/30 sec. to 2.5 sec.  
**Sensitivity:**  
ISO 100  
**Effective Focal Length:**  
50 mm

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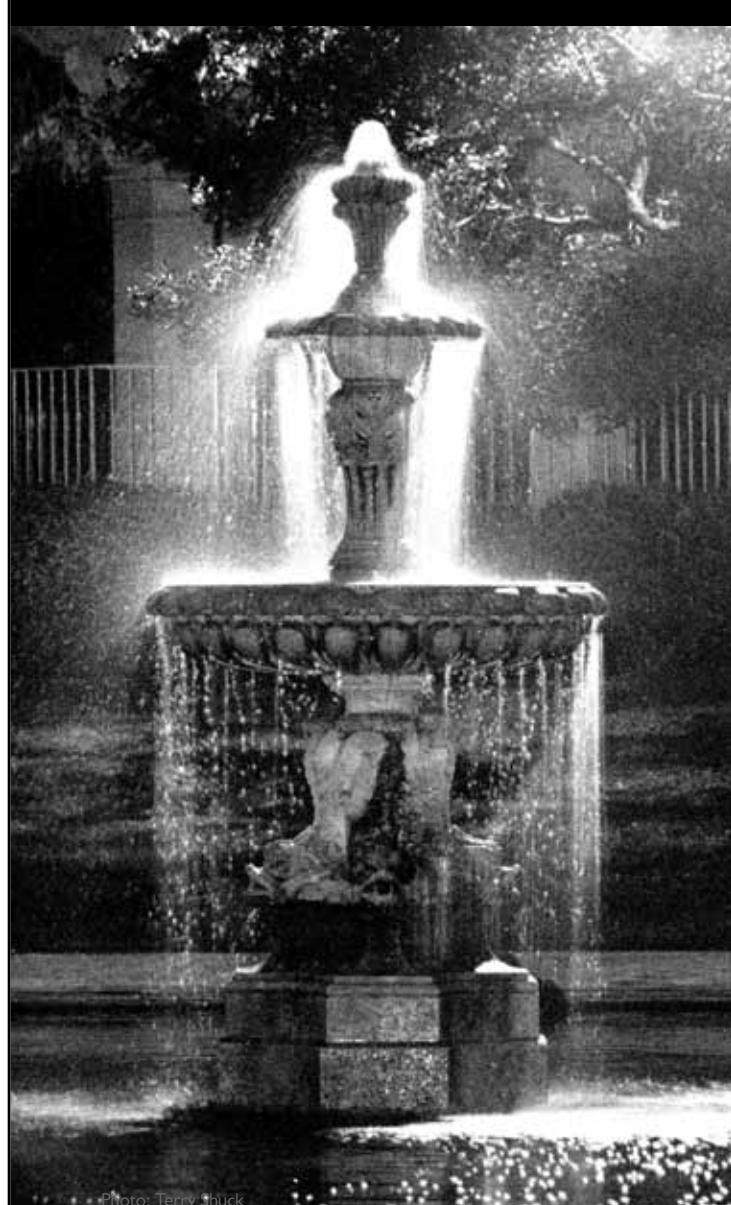


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# Red Sox sign on Sandoval, Ramirez

## *Red Sox acquire Sandoval and Ramirez to solve offensive woes*

By Souparno Ghosh  
SPORTS STAFF

Following a forgettable 2014 season in which the Red Sox went from first to worst, general manager Ben Cherington and the front office wasted no time in landing free agents Pablo Sandoval and Hanley Ramirez. A big part of Boston's struggles last season was the lack of offensive production, and following the trade-deadline day arrivals of right-handers Yoenis Cespedes and Allen Craig, the Red Sox were in need of a left-handed power bat.

They got that and much more in Pablo Sandoval (aka Panda). Sandoval is a switch-hitting third baseman coming off his third World Series triumph in five years with the San Francisco Giants. Sandoval is known to be a big-time player when the lights are shining the brightest, he delivers. His .426 batting average in World Series games is second only to Red Sox's own Big Papi, who leads the category with .455 amongst players with at least 50 at bats.

With a .366 batting average and a record 26 hits in the post season, you know Pablo Sandoval plays for October. The Red Sox not only get a switch hitter, but also a third-baseman, a position that no player has made his own following Will Middlebrooks' inability to remain healthy and deliver consistently over the last two seasons. At 28, Sandoval is in his prime, and with a 5-year \$95 million con-

tract with a club option for a sixth season, this looks like a deal well done by the Red Sox.

The Red Sox's second big acquisition was shortstop Hanley Ramirez. Ramirez is a career .300 hitter with three All Star appearances, a National League Rookie of the Year (2006) award and two silver-slugger awards with the Miami Marlins. He played for the Dodgers the last two seasons, but perhaps what is remarkable about his journey is that he was traded by the Red Sox in 2005 for Josh Beckett and Mike Lowell.

Although, the deal worked out well for both sides, Ramirez said he was disappointed to leave the team that had drafted him as an International free agent when he was just sixteen. He was delighted to be back at Fenway Park and even agreed to play a new position, the left field, for the first time in his career. The Red Sox signed the 31-year-old Ramirez for a 4-year, \$88 million contract with an option for a fifth year.

With two big acquisitions, the Red Sox have definitely added to their batting lineup the much-needed pop they were lacking last season. It is time to turn the attention to starting pitching. Having traded away four-fifths of their starting rotation last season, the Red Sox look poised to sign a free agent (remember Jon Lester) and use their substantial surplus of outfielders and pitching prospects for another veteran starting pitcher.

# Roger Federer, Switzerland are victorious in Davis Cup

## *Federer completes his trophy collection with win*

By Souparno Ghosh  
SPORTS STAFF

Roger Federer helped Switzerland win their first ever Davis Cup title when he beat Richard Gasquet 6-4 6-2 6-2 in the fourth match of the tie, giving the Swiss an unassailable 3-1 lead. The Swiss were given a dream start when Stanislas Wawrinka defeated French No. 1 Jo-Wilfried Tsonga 6-1 3-6 6-3 6-2. The French pulled even when Gael Monfils crushed Roger Federer in straight sets, 6-1 6-4 6-3. There were serious questions about Federer's fitness, as less than a week earlier he had to give Novak Djokovic a walk-over in the season-ending Barclays ATP Tour Finals.

But like a true warrior Federer bounced back, first teaming up with Wawrinka to give the Swiss a 2-1 lead following their doubles' triumph over Julian Benneteau and Richard Gasquet 6-3 7-5 6-4. With the match online, the French suffered a setback when Tsonga could not be match fit for the return singles match against Federer. With the chance to give the Swiss their first Davis Cup title, Federer demolished Gasquet to finish the year on a high.

Having already won a record 17 Grand Slam titles, 6 ATP Tour Finals and an Olympic Gold medal, Federer conquered his final frontier by adding the one crown that had remained elusive. It takes a man of unbelievable

stature to remain humble after achieving what he has in tennis, and yet he was able to do just that following his victory, dedicating the historic achievement to his team.

Federer has been a dominant figure in men's tennis for over a decade now, and undoubtedly this triumph would not have been possible without the emergence of Stanislas Wawrinka. With the season he has had, his first Grand Slam title at the Australian Open and a couple of epic encounters with Djokovic, he has emerged out of Federer's shadows and is a force to reckon with in his own regard, perhaps even the greatest threat to the Federer-Nadal-Djokovic triad.

# New England Revolution reach the MLS Cup final

*New England defeats the New York Red Bulls to reach their first MLS Cup final since 2007*

By Souparno Ghosh  
SPORTS STAFF

The New England Revolution reached their first MLS Cup final since 2007 after holding the New York Red Bulls to a 2-2 draw in the second leg of the Eastern Conference Championship game at Foxborough on Saturday. Coming into the second leg with a 2-1 advantage, the Revs came back

from a goal deficit twice in the game, with Charlie Davies scoring both goals. This game might well have been the last time the former Arsenal and Barcelona forward Thierry Henry made an appearance in the MLS, although reports of his retirement are still unconfirmed.

This will be New England Revolution's fifth appearance in the MLS Cup following three

consecutive final appearances from 2005-07. The MLS Cup has proven to be elusive. However, following a second-place finish in the regular season and with the likes of Jermaine Jones and MVP finalist Lee Nguyen in their ranks, the Revs will be up for the challenge when they face the winners of L.A. Galaxy vs. Seattle Sounders on Dec. 7 for the MLS Cup Final.

This **CSAIL SEMINAR SERIES**, organized in cooperation with the Siri team at Apple, invites leading researchers in HLT to give lectures that introduce the fundamentals of spoken language systems, assess the current state of the art, outline challenges, and speculate on how they can be met. Lectures occur 2-3 times per semester and should be accessible to undergraduates with some technical background.

# Human Language Technology

D I S T I N G U I S H E D      L E C T U R E      S E R I E S

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### ABSTRACT

This talk will give an overview of statistical approach to flexible speech synthesis. For constructing human-like talking machines, speech synthesis systems are required to have an ability to generate speech with arbitrary speaker's voice, various speaking styles in different languages, varying emphasis and focus, and/or emotional expressions. The main advantage of the statistical approach is that such flexibility can easily be realized using mathematically well-defined algorithms. In this talk, the system architecture is outlined and then recent results and demos will be presented.



### SPEAKER

**Keiichi Tokuda**

NAGOYA INSTITUTE OF TECHNOLOGY

### HOSTS

**Jim Glass** and **Victor Zue**  
MIT CSAIL

### BIOGRAPHY

Keiichi Tokuda is a Professor in the Department of Computer Science at Nagoya Institute of Technology and currently he is visiting Google on sabbatical. He is also an Honorary Professor at the University of Edinburgh. He was an Invited Researcher at the National Institute of Information and Communications Technology (NICT), formally known as the ATR Spoken Language Communication Research Laboratories, Kyoto, Japan from 2000 to 2013, and was a Visiting Researcher at Carnegie Mellon University from 2001 to 2002. He has been working on statistical parametric speech synthesis after he proposed an algorithm for speech parameter generation from HMM in 1995. He received six paper awards and two achievement awards. He is an IEEE Fellow and an ISCA Fellow.



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